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EXAMINER

PAYNE, DAVID C

ART UNIT PAPER NUMBER

2638

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/824,643	SUZUKI, MIKIYA	
	Examiner	Art Unit	
	David C. Payne	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 11-17 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-17, and 20-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2638

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 16-20 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522) in view of Chang et al. US 6,545,781 B1 (Chang).

Regarding claim 1

The '522 patent disclosed (e.g., Figure 2)

an optical transmission device to distribute transmission signals to be transmitted among a plurality of wavelength components (e.g., col./line: 3/45-50), convert each of said transmission signals into WDM signals (255 of Figure 2), and send each of said WDM signals to a specific route of said WDM transmission network;

an optical receiving device to restore the WDM signals from the WDM transmission network into the transmission signals (285 of Figure 2).

The '522 patent disclosed the WDM network as shown but not the plurality of routes and router element as claimed.

Art Unit: 2638

Chang disclosed an optical transmission network having a plurality of routes for transmitting optical signals (see Figure 2); and a wavelength component-specific route setting device to set routes for each of the wavelength components for transmission on said WDM transmission network (111 of Figure 3). It would have been obvious to one of ordinary skill in the art at the time of invention to use the distribution device in an WDM network of multiple paths since first, networks by definition typically reach multiple destinations and thereby require multiple paths and second, the network in Chang is capable of accommodating data traffic of multiple protocols and formats by separating traffic according to throughput and latency requirements (see, Chang col./line: 1/25-50).

Regarding claim 16

The '522 patent disclosed (e.g., Figure 2)

A wavelength division multiplex transmission system, comprising:; an optical transmission device which converts into wavelength division multiplex signals (WDM signals) the transmission signals input as electrical signals from a transmission terminal and sends said signals to said WDM transmission network (255); an optical receiving device which converts said WDM signals received from said WDM transmission network into electrical signals (285), and regenerates said transmission signals for output to an output terminal;

wherein said optical transmission device and optical receiving device are designed to cooperate in generating transmission quality information for the network within said WDM transmission network (e.g., col./line: 4/30-45).

The '522 patent disclosed the WDM network as shown but not the plurality of routes and router element as claimed.

Chang disclosed an optical transmission network having a plurality of routes for transmitting optical signals (see Figure 2); and a wavelength component-specific route setting device to set routes for each of the wavelength components for transmission on

Art Unit: 2638

said WDM transmission network (111 of Figure 3). It would have been obvious to one of ordinary skill in the art at the time of invention to use the distribution device in an WDM network of multiple paths since first, networks by definition typically reach multiple destinations and thereby require multiple paths and second, the network in Chang is capable of accommodating data traffic of multiple protocols and formats by separating traffic according to throughput and latency requirements (see, Chang col./line: 1/25-50).

The '522 patent does not disclose a network management device which is coupled to said optical transmission device, WDM transmission network and optical receiving device, and which manages functions for each of these devices; with said transmission quality information provided to said network management device from said optical receiving device; said network management device is designed to apply to said optical transmission device distribution instructions for distribution of each wavelength, to appropriate routes, of said WDM signals; and, said optical transmission device is designed to distribute said transmission signals, in order to set routes by wavelength for said WDM signals according to distribution instructions, and output distributed transmission signals.

Chang disclosed a method of routing wavelengths through a network in conjunction with a network management system (NC&M) (Figure 2 #220). It would have been obvious to one of ordinary skill in the art at the time of invention to use the Chang NC&M in the '522 patent to monitor network elements and determine if sites are communicating.

Regarding claims 17 and 19

the modified invention of the '522 patent and Chang disclosed in which said optical transmission device comprises: a distributor ('522 – Figure 2 #240) to distribute said transmission signals, and an optical channel unit, coupled with said distributor, to convert into WDM signals each of said

Art Unit: 2638

distributed transmission signals (e.g., col./line: 3/45-50).

Regarding claim 18,

the modified invention of the '522 patent and Chang disclosed in which said optical channel unit comprises an evaluation signal output unit to output, to said route, evaluation signals used to generate said transmission quality information ('522 – Figure 2 #305).

Regarding claim 20,

the modified invention of the '522 patent and Chang disclosed in which said optical channel unit comprises: a WDM signal output unit which outputs WDM signals corresponding to distributed transmission signals in accordance with said distributed transmission signals; an evaluation signal output unit ('522 – Figure 2 #240) which outputs, to said routes, evaluation signals used in generating said transmission quality information; and, a signal selection unit which controls switching operation between said WDM signal output unit and said evaluation signal output unit ('522 - e.g., col./line: 4/30-45)

Regarding claims 24-27

the modified invention of the '522 patent and Chang does not disclose wherein said wavelength component specific route setting device has route-setting means-which causes said transmission characteristic evaluation means to evaluate one or a plurality of empty routes for each wavelength component, and sets routes. However, the '522 patent does disclose routing based on channels that are carrying traffic lower than a maximum attainable channel capacity (see col./line: 3/55-65). It would have been obvious to one of ordinary skill in the art at the time of invention that an empty route is merely specific case of a more generalized condition of a route operating lower than its maximum capacity.

Art Unit: 2638

4. Claims 2, 4-10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522) in view of Chang et al. US 6,545,781 B1 (Chang) as applied to claims 1 and 18 above, and in further view of Goyal et al. US 6,466,985 B1 (Goyal).

Regarding claim 2

The modified invention of '522 and Chang disclosed

A wavelength division multiplex transmission system wherein said optical transmission device has a plurality of optical channel units ((e.g., '522, 255 of Figure 2), for each of said wavelength components, which convert distributed transmission signals into optical signals at a prescribed wavelength, and signal distribution means (240) which divides transmission signals into a plurality of signals and distributes said signals among said optical channel units (240); The '522 patent does not disclose said optical channel units for each wavelength component output optical signals which include labeling information for designating a route set for the own optical channel unit.

The Goyal patent (e.g., col./line: 2/15-25, 4/20-25) disclosed pinning labels to routes to designate particular quality of service (QOS) routes. It would have been obvious to one of ordinary skill in the art at the time of invention to use label identifiers in the modified invention in order to assign data to paths in the network based on the service quality needs of the data and thereby offer richer traffic management as discussed in Goyal (see e.g., col./line: 1/20-40).

Regarding claim 4,

the modified invention of '522, Chang and Goyal disclosed

wherein said wavelength component specific route setting device has route-setting means which sets routes for each of said wavelength components for transmission through said WDM transmission network, according to route-specific transmission characteristics (Goyal - e.g., col./line: 2/15-25, 4/20-25 or Chang 111 of Figure 3).

Art Unit: 2638

Regarding claim 5,

the modified invention of '522, Chang and Goyal disclosed wherein said optical transmission device and said optical receiving device comprise constituent components of transmission characteristic evaluation means ('522 – Figure 2 #305) for sending, receiving, and evaluating evaluation signals to evaluate transmission characteristics of prescribed wavelength components for each route, and said wavelength component-specific route setting device has route-setting means which sets routes for each of said wavelength components for transmission on said WDM transmission network, according to the evaluation results of said transmission characteristic evaluation means.

Regarding claims 6, 7, and 9

the modified invention of '522, Chang and Goyal does not disclose wherein said wavelength component specific route setting device has route-setting means-which causes said transmission characteristic evaluation means to evaluate one or a plurality of empty routes for each wavelength component, and sets routes. However, the '522 patent does disclose routing based on channels that are carrying traffic lower than a maximum attainable channel capacity (see col./line: 3/55-65). It would have been obvious to one of ordinary skill in the art at the time of invention that an empty route is merely specific case of a more generalized condition of a route operating lower than its maximum capacity.

Regarding claims 8 and 10

the modified invention of '522, Chang and Goyal disclosed having transmission quality management means ('522 – e.g., see col./line: 4/30-40) which, during transmission of the WDM signals of said transmission signals, evaluate transmission quality for each wavelength component and control transmission speed for each wavelength component ('522 – e.g., see col./line: 3/55-65, 4/55-67, 5/1-5).

Regarding claim 21

Art Unit: 2638

the modified invention of the '522 patent and Chang does not disclose said optical channel units for each wavelength component output optical signals which include labeling information for designating a route set for the own optical channel unit.

The Goyal patent (e.g., col./line: 2/15-25, 4/20-25) disclosed pinning labels to routes to designate particular quality of service (QOS) routes. It would have been obvious to one of ordinary skill in the art at the time of invention to use label identifiers in the '522 patent in order to assign data to paths in the network based on the service quality needs of the data and thereby offer richer traffic management as discussed in Goyal (see e.g., col./line: 1/20-40).

5. Claim 3, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522) in view of Chang et al. US 6,545,781 B1 (Chang) as applied to claims 1, 16 and 18 above, and in further view of Handelman US 6,574,018 B1 ('018).

Regarding claim 3

The modified invention of '522 and Chang disclosed (e.g., '522 - Figure 2)

A wavelength division multiplex transmission system according to wherein said optical receiving device has a plurality of optical receiving units (210) for each of said wavelength components, which convert optical signals at the wavelength component into distributed transmission signals which are electrical signals (285),

The modified invention of '522 and Chang does not disclose a delay compensation unit which absorbs differences in the propagation delay of distributed transmission signals from each of said optical receiving units.

The '018 patent disclosed such a delay compensation unit (Figure 8A). It would have been obvious to one of ordinary skill in the art at the time of invention to use the '018 delay generator in the modified invention of '522 and Chang to align data channels that may travel via separate links and/or routes as discussed in the '018 patent (e.g., col./line: 3/20-30, 8/55-65).

Art Unit: 2638

Regarding claim 22

The modified invention of the '522 patent and Chang disclosed (e.g., '522 -Figure 2)

A wavelength division multiplex transmission system according to wherein said optical receiving device has a plurality of optical receiving units (210) for each of said wavelength components, which convert optical signals at the wavelength component into distributed transmission signals which are electrical signals (285),

The modified invention of the '522 patent and Chang does not disclose a delay compensation unit which absorbs differences in the propagation delay of distributed transmission signals from each of said optical receiving units.

The '018 patent disclosed such a delay compensation unit (Figure 8A). It would have been obvious to one of ordinary skill in the art at the time of invention to use the '018 delay generator in the modified invention to align data channels that may travel via separate links and/or routes as discussed in the '018 patent (e.g., col./line: 3/20-30, 8/55-65).

Regarding claim 23

The modified invention of the '522 patent and Chang as taught above does not disclose a delay compensation unit which compensates for delays, differing by route, of electrical signals at each wavelength. The '018 patent disclosed such a delay compensation unit (Figure 8A). It would have been obvious to one of ordinary skill in the art at the time of invention to use the '018 delay generator in the modified invention to align data channels that may travel via separate links and/or routes as discussed in the '018 patent (e.g., col./line: 3/20-30, 8/55-65).

6. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522), Chang et al. US 6,545,781 B1 (Chang) and Goyal et al. US 6,466,985 B1 (Goyal) as applied to claim 2 above, and further in view of Takada US 5,949,563 (Takada).

Regarding claims 11 and 12, The modified invention of '522, Chang and Goyal did not disclose wherein said optical transmission device has an auxiliary optical channel unit which, upon the occurrence of a defect in any of members of said optical channel units or said optical receiving units, functions in place of said optical channel unit to take charge of the wavelength component of the defective member, and said optical receiving device has an auxiliary optical receiving unit which functions in place of said optical receiving unit to take charge of the wavelength component of said defective member.

Takada disclosed switching auxiliary components in for failed transmitters or receivers in a WDM system (e.g., e.g., col./line: 2/50-65). It would have been obvious to one of ordinary skill in the art at the time of invention to add an auxiliary light system that can switch routes in order to provide reliable transport through the network.

Regarding claims 13 and 14,

The modified invention of '522, Chang and Goyal and Takada disclosed wherein said auxiliary optical channel unit and said auxiliary optical receiving unit can change the wavelength which can be processed, and can be set to and operate at the wavelength component of said defective member (e.g., e.g., col./line: 2/50-65). While, Takada does not disclose a fixed wavelength auxiliary system, it would have been obvious to one of ordinary skill in the art at the time of invention that a fixed wavelength system is but a specific case of the one disclosed by Takada and furthermore, fixed wavelength system is a less expensive variant that may be employed when only a small number of wavelengths can be used.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522) and Chang et al. US 6,545,781 B1 (Chang) as applied to claim 1 above, and in further view of Takada US 5,949,563 (Takada).

Art Unit: 2638

Regarding claim 15,

The modified invention of '522 and Chang did not disclosed upon the occurrence of a defect in a network element in said WDM transmission network, said wavelength component-specific route setting device resets the routes for transmission in said WDM transmission network for all of said wavelength components on routes which have said network element as an element.

Takada disclosed switching auxiliary components in for failed transmitters or receivers in a WDM system (e.g., e.g., col./line: 2/50-65). It would have been obvious to one of ordinary skill in the art at the time of invention to an auxiliary light system that can switch routes in order to provide reliable transport through the network.

8. Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman US 6,404,522 B1 ('522) and Chang et al. US 6,545,781 B1 (Chang) as applied to claims 17 and 26 above, and further in view of Takada US 5,949,563 (Takada).

Regarding claims 28 and 29,

The modified invention of the '522 patent and Chang did not disclose in which said transmission quality information comprises defect information which indicates that a defect has occurred in a network element within said WDM transmission network. Takada disclosed switching auxiliary components in for failed transmitters or receivers in a WDM system (e.g., e.g., col./line: 2/50-65). It would have been obvious to one of ordinary skill in the art at the time of invention to add an auxiliary light system that can switch routes in order to provide reliable transport through the network.

Regarding claims 30 and 31,

The modified invention of the '522 patent and Chang did not disclose in which said optical transmission device comprises an auxiliary optical channel unit of fixed wavelength or of variable wavelength, in parallel with said optical channel unit, and

Art Unit: 2638

which is used when a defect occurs in said optical channel /receiving unit.

Takada disclosed wherein said auxiliary optical channel unit (Figure 7 OS) and said auxiliary optical receiving unit (Figure 7 OR) can change the wavelength that can be processed, and can be set to and operate at the wavelength component of said defective member (e.g., e.g., col./line: 2/50-65). While, Takada does not disclose a fixed wavelength auxiliary system, it would have been obvious to one of ordinary skill in the art at the time of invention that a fixed wavelength system is but a specific case of the one disclosed by Takada and furthermore, fixed wavelength system is a less expensive variant that may be employed when only a small number of wavelengths can be used.

Regarding claim 32,

The modified invention of the '522 patent, Chang, and Takada disclosed in which said optical transmission unit comprises an optical switch (Takada - Figure 7, #81, #82, #83) which selects wavelengths of said WDM signals from the optical channel unit and auxiliary optical channel unit.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp



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AU 2638